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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,411	06/30/2003	Byung-sun Choi	Q73220	8067

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EXAMINER

VO, TUNG T

ART UNIT	PAPER NUMBER
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2621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/608,411

Applicant(s)

CHOI, BYUNG-SUN

Examiner

Tung Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-13, 15-18, 20-23 and 25-45 is/are pending in the application.
- 4a) Of the above claim(s) 4, 14, 19 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 9-10, 12-13, 17-18, 22-23, 27, 29-30, and 32-34 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 8, 11, 15, 16, 20, 21, 25, 26, 28, 31 and 36-45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 12, 17, 22, and 32 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3, 7, 9-10, 12-13, 17-18, 22-23, 26-27, 29-30, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajime (US 6,915,018)

Re claims 1, 9, 12, 17, 22, 29, 32-34, Tajime discloses a transcoding apparatus (figs. 1 and 10) comprising: a video decoding unit (11 of fig. 1) which receives compressed bitstream and performs decoding thereof to output decoded pictures;

a complexity estimation unit (101 of fig. 1) which estimates complexity of a current picture among the decoded pictures to encode the current picture;

a target bit-allocation unit (102 and 104 of fig. 1) which performs desired bit-allocation using the complexity information of the current picture;

a bit-rate control unit (104 of fig. 1) which controls bit-rate using bit-allocation information (102 of fig. 1) and state information from memory, which outputs an encoded bitstream (13 of fig. 1); and

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a video encoding unit (13 of fig. 1) which encodes the decoded pictures on the basis of the bit- allocation and state information of the bit-rate control unit.

wherein the complexity estimation unit (101 of fig. 1) calculates complexity of a picture to be currently encoded, using complexity of decoded previous and current pictures output from the video decoding unit (11 of fig. 1, Note I, P, B pictures of MPEG).

Tajime further teaches the same complexity estimation unit (101 of fig. 2) calculates complexity of an encoded previous picture output from the video encoding unit (col. 10, lines 23-33).

Since the complexity estimation unit (101 of figs. 1 and 2) calculates the complexity of the decoded pictures (11 of fig. 1) and the complexity of the encoded picture (13 of fig. 2), it would have been obvious to one of ordinary skill in the art to combine the teachings of figures 1 and 2 of Tajime together in order to improve the complexity measurement. Doing would provide a compressed moving picture re-encoding apparatus and a compressed moving picture re-encoding method that realize shortening of the processing delay, improvement of the picture quality, and improvement of the encoding efficiency, when compressed moving picture re-encoding is performed.

Re claim 3, 10, 13, 18, 23, 30, Tajime further teaches wherein the compressed bitstream input to the video decoding unit is compressed in MPEG (Motion Picture Experts Group) format (col. 1).

Re claims 7 and 27, Tajime further teaches wherein the target bit-allocation unit (104 of fig. 1) calculates a number of bits to be allocated for the current picture using the complexity of the current picture (col. 8, lines 39-44).

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2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajime (US 6,915,018) in view of Kim (2002/0126752).

Re claim 2, Tajime does not particularly disclose an output buffer which stores and outputs pictures encoded by the video encoding unit, wherein state information of the output buffer is provided to the bit-rate control unit as claimed.

However, Kim teaches the well known output buffer which stores and outputs pictures encoded by the video encoding unit, wherein state information of the output buffer is provided to the bit-rate control unit (40 of fig. 3).

Therefore, taking the teachings of Tajime and Kim as a whole, it would have been obvious to one of ordinary skill in the art to modify the output buffer (40 of fig. 3) of Kim into the transcoding system of Tajime for the same purpose of buffering the encoded video stream to the target bit rate controller and transmitting the encoded video stream storage or the further processing. Doing so would allow the system control overflow and underflow encoded data during encoding.

Allowable Subject Matter

3. Claims 5-6, 8, 11, 15, 16, 20, 21, 25-26, 28, 31, 36-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

Tajime teaches the transcoding having the complexity measure computing means (101 of fig. 18) for computing the complexity of the encoded and decoded pictures and quantizer step

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size selecting means (103 of figs 1 and 2). However, Tajime does not particularly disclose wherein the bit-allocation unit increases a number of bits to be allocated for the current picture if complexity of an estimated current picture is large, and decreases number of bits to be allocated for the current picture if the complexity of the estimated current picture is small as specified in claims 6, 26, and 36; wherein the complexity estimation unit estimates the complexity of the current picture based on a product of a complexity of a decoded current picture and a ratio of a complexity of an encoded previous picture of the current picture to a complexity of a decoded previous picture of the current picture as specified in claims 37-45 as shown in the specification of the application [0049], [0053], [0057].

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the previous Office Action.

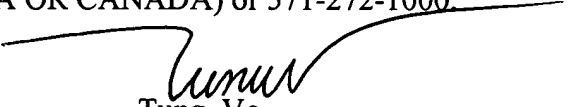
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tung Vo
Primary Examiner
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